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Decremental analysis of plus-size women: Pant drafting and grading implications

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Fitting issues are a major complaint among plus-size consumers. Pants, in particular, have numerous fit issues for plus-size women (Alexander, Pisut, & Ivanescu, 2012). Two critical reasons that plus-size pants fit so badly are: (1) the apparel industry assumes a single body shape when creating pattern blocks and (2) grading practices assume that individuals change by the same amount on the front and back of the body (Alexander et al., 2012; McKinney, Gill, Dorie, & Roth, 2017; Schofield & LaBat, 2005). Therefore, the purpose of the multi-year, funded study was to: determine the efficacy of a current pant pattern drafting method and grading rules for plus-size women.

Methods and Procedures

Approval was sought from the Institutional Review Board prior to beginning the study activities. Plus-size women were then recruited to take part in a longitudinal research study to investigate the purpose statement. Each participant had her height and weight taken prior to receiving a 3D body scan. The body scan recorded 172 measurements of the participant. The participants were asked to come back for a follow-up scan following 10 pounds of weight-loss. The researchers chose to use 10 pounds as it was approximately the difference between one apparel size to the next.

Following the data collection stage, the researchers met to begin pattern drafting. Ultimately, Connie Amaden-Crawford (2013) was chosen as the pattern drafting method because one of the researchers had previously used this method with great success to create custom pants for many different types of body sizes and shapes. The front and back pants were drafted concurrently for each scan. Then the pants were compared for each participant's scan 1 and scan 2 (the scan taken after 10 pounds of weight loss).

Results and Discussion

Recruitment of subjects for the study was very difficult as the women had to commit to coming for multiple scans and also had to lose weight. Thus, only eight women had usable scan pairs. Drafting pants from the scans also proved challenging for the researchers, who each had over 10 years of pattern drafting experience. Many of these issues stemmed from the measurements that were taken by the scanner. The departmental scanner did not take some key measures, like back hip. The researchers had to derive some measures using mathematical formulas, for example it was possible to find the back rise by subtracting the front rise from the overall crotch length. The researchers also found some unexpected changes like inseams or front hips that grew in the second scan- it is possible that the scanner were better able to accurately read the landmarks on the bodies following the 10 pounds of weight loss.

The researchers discussed what measures would be best prior to drafting the final versions of the pants. They found that many of the participants' measures did not work well with the pattern drafting method. The Amaden-Crawford (2012) method is driven by the hip measure

but many of the participants had larger waists than hips which did not allow for drafted pants to properly fit the waists. The front waists of some drafted pants did not allow for any darts to be added (n= 5). Other participants did not have room for darts in the backs on their pants (n=6). The lack of ability to add darts in either front or back suggests that the pants will not properly conform to the shapes of the participant's bodies.

There were also interesting changes between the two scans for each participant. No participants lost weight symmetrically from front and back- lending further proof that a simplified grading system is not appropriate for accurately fitting plus-size women (Schofield & LaBat, 2005).

Another interesting change occurred on the inseams of some participants' scans. Six of the participant's pant drafts had noticeable shifts in the inseams of the pant legs following weight loss. The shift on one participant's pants was over 20 degrees. These shifts also caused the grainlines of the pants to swing quite dramatically. The loss of weight primarily in the front or back of the body will influence where the grainline is placed due to the standardized pattern drafting method (Amaden-Crawford, 2013). So a loss primarily off the front or back can cause pant legs to skew on the body if a standard drafting and grading practice is utilized.

Conclusion

The results of this research indicate that the pattern drafting method was not suitable for accurately fitting most of the participants, especially those in which the waist was larger than the hips. A new system of pant drafting must be developed, in which the largest measure of a body is given prominence in determining how to draft the remainder of the pattern.

There were also grading implications. Weight was not lost symmetrically by the participants, which lends more weight to the claim that grading assumptions in which the front and back change symmetrically are not sufficient for fitting most individuals (Schofield & LaBat, 2005).

Scanning implications also can be found. Some participants had changes in which inseams and hips grew after the 10 pounds of weight loss. Future research should investigate into how researchers can better control for this phenomenon, perhaps by using markers when scanning plus-size participants.

References

- Alexander, M., Pisut, G., & Ivanescu, A. (2012). Investigating women's plus-size body measurements and hips shape variation based on SizeUSA data. *International Journal of Fashion Design, Technology and Education*, 5(1), 3-12.
- Amaden-Crawford, C. (2013). *Patternmaking made easy* (3rd ed.). Hansville, WA: Amaden-Crawford LLC.
- McKinney, E., Gill, S., Dorie, A., & Roth, S. (2017). Body-to-pattern relationships in women's trouser drafting methods: Implications for apparel mass customization. *Clothing and Textiles Research Journal*, 35(1), 16-32.
- Schofield, N. & LaBat, K. (2005). Defining and testing the assumptions used in current apparel grading practice. *Clothing and Textiles Research Journal*, 23(3), 135-150.